

REMARKS

Claims 1-52 are pending in this application, claim 52 having been added above. Claims 1, 18, 35 and 52 are the independent claims.

Claims 1-17 and 35-51 stand rejected under 35 U.S.C. 112, second paragraph for various informalities. Specifically, the Examiner states that it is unclear whether claims 1-17 claim an optical transmission system or an optical transmission span. The preamble of dependent claims 2-17 have been amended to clearly point out that claims 1-17 are directed to an optical transmission span. The Examiner also states that certain of the claims (e.g., claim 3) include additional limitations such as an industry-standard, network level protocol, which is not part of the optical transmission span. Applicants respectfully submit that while these additional limitations may not expressly be part of the optical transmission span, they do nevertheless help to further define the claimed optical transmission span. In particular the claimed industry-standard, network level protocol further defines the third interface of the optical interface device (which is a part of the transmission span) since the third interface must communicate not simply with the second interface of any optical transmission terminal, but with the second interface of a very particular optical transmission terminal – namely, in the case of claim 3, for example, an optical transmission terminal that also has an interface that conforms to a SONET/SDH protocol. For these reasons Applicants believe that claims 1-17 clearly set forth and claims an optical transmission span.

In connection with claim 35, the Examiner states that it is unclear whether the optical interface device of claim 35 includes the optical transmission path. Claim 35 has been amended to more clearly point out that the optical transmission path is not a part of the optical interface device, but rather that the optical interface device, after transforming the optical signal, directs it onto the optical transmission path. Accordingly, for all these reasons Applicants respectfully request that the rejection of claims 1-17 and 35-51 under 35 U.S.C. 112, second paragraph, be reconsidered and withdrawn.

Claims 1, 3-4, 6-8, 11, 35, 37-38, 40-42, and 45 stand rejected under 35 U.S.C. 102(e) as being anticipated by Li et al. (U.S. Patent 6,697,577 B1). In addition, Claims 1-

2, 5-8, 35-36, 39-42 and 45 are rejected under 35 U.S.C. 102(e) as being anticipated by Kasahara (U.S. Patent Appl. Pub. 2002/0131115 A1), Claims 1-3, 5-8, 11-12, 14-16, 18-20, 22-25, 28, 30-31, 33-37, 39-42, 45-46 and 49-50 are rejected under 35 U.S.C. 102(e) as being anticipated by Ikoma et al. (US Patent Appl. Pub. 2002/0097460 A1), and Claims 1-4, 18-21 and 35-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Gerstel et al. (U.S. Patent Appl. Pub. 2004/0165888 A1).

Further, claims 9-10 and 43-44 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. in view of Trischitta et al. ("Applying WDM Technology To Undersea Cable Networks"). Claims 9-10, 26-27 and 43-44 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ikoma et al. in view of Trischitta et al., Claims 13, 29 and 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikoma et al. in view of Yu et al. (U.S. Patent Appl. Pub. 2003/0048508 A1) and Claims 17, 32 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikoma et al. in view of Ransford et al. (U.S. Patent 6,532,087 B1).

All of the above rejections are hereby traversed for at least the following reasons.

The primary references cited by the Examiner in the rejection of independent claims 1, 18 and 35 are all deficient because none of them show an optical interface device that communicates with an optical transmission terminal. Specifically, in each case the Examiner has asserted that a transponder corresponds to the *optical transmission terminals* set forth in the claims. More specifically still, the Examiner has asserted that the transponders 706 seen in FIG. 7 of Li (which Li refers to as transmitters 706), the transponders 21, 22, ... 2N seen in FIG. 1 of Kasahara, the transponders 1-1 seen in FIG. 8 of Ikoma, and the transponders seen in figures 1 and 4 of Gerstel, each correspond to the optical transmission terminal. Applicants respectfully submit that this correspondence is incorrect.

As these terms are commonly employed by those of ordinary skill in the art, a transponder refers to a component that receives an input signal and converts that signal to a wavelength to be optically multiplexed with other wavelengths (see, for example, the "Glossary of Optical Networking Terms" available from Cisco Systems at

www.cisco.com/en/US/products/hw/optical/ps2011/prod_technical_reference09186a00800a8655.html#998768). A transmission terminal, on the other hand, incorporates one or more transponders, as well as other components necessary to communicate the signals generated by the transponder(s) over the transmission line. For example, the transmission terminal may include multiplexers, optical amplifiers, monitoring and error correction functionality, control circuitry, and the like. For example, attached herewith is a presentation entitled “WDM Network Elements” available from the Technical University of Berlin at http://www.tkn.tu-berlin.de/curricula/ss05/vl-bbn/Folien/SS2004-WDM_Elements-4up.PDF. Pages 3-6 of this reference describe the optical terminals and clearly show that the transponder is simply one component of the terminal. Likewise, a presentation from chapter 7 of “WDM Network Elements” by John Bowers is also attached, which is available from the University of California, Santa Barbara at http://www.ece.ucsb.edu/courses/ECE228/228B_W05Bowers/5aa.pdf. Page 13 of this reference describes the elements of an optical terminal. The distinction in usage between the terms transponder and optical transmission terminal illustrated by these references is well established. In fact, the references cited by the Examiner are all consistent with and provide further support for this conclusion.

One important advantage of the present invention is that it allows optical transmission terminals to be used to transparently communicate over undersea optical transmission paths without the need to retrofit the terminals, even if those terminals are designed for terrestrial applications and not undersea applications. That is, the inventive interface device allows the optical transmission path to be transparent to the terminals. Accordingly, it is important that the inventive interface device be capable of interfacing with commercially available transmission terminals. Submitted herewith are data sheets for some of the representative transmission terminals set forth in paragraph 33 of the specification. Clearly, these terminals provide more functionality, and hence require more components, than is simply offered by a transponder.

Since the transponders shown in the cited references do not correspond to the optical transmission terminals set forth in the claims, the additional components set forth

in the references such as multiplexers and optical amplifiers do not correspond to the claimed signal processing unit of the optical interface device recited in the claims. Rather, these additional components are simply components employed in virtually all conventional transmission terminals. Accordingly, these references do not show anything whatsoever corresponding to the claimed optical interface device set forth in claims 1 and 35, which serves to transparently interface an optical transmission terminal (and not simply a transponder) to an optical transmission path. Instead, they simply show conventional terminals that may be used in connection with the present invention. Likewise, in connection with claim 18, the references fail to show the step of transforming an optical data signal received from an optical transmission terminal. At most, the references simply show the step of transforming an optical data signal received from a transponder.

For at least the foregoing reasons it is respectfully submitted that independent claims 1, 18, 35 and the claims that depend therefrom are patentable over the cited references.

Newly added independent claim 52 is similar to claim 1 except that claim 52 sets forth that the optical interface device is operable with a variety of different optical transmission terminals that employ different proprietary optical transport layer protocols. Support for this claimed feature is set forth, for example, in paragraph 33 of the specification, which states that "The interface provides high compatibility between the proprietary interface of terrestrial optical terminals available from multiple vendors and the undersea transmission path. That is, the interface is designed to be terminal independent and serves as an interface between terrestrial optical layer transport protocols and an undersea optical layer transport protocol." Applicants respectfully submit that this claimed feature is not shown or suggested in the cited references.

Conclusion

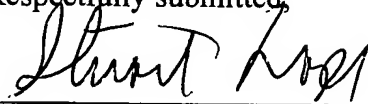
In view of the foregoing, it is believed that the application is now in condition for allowance and early passage of this case to issue is respectfully requested. If the

Examiner believes there are still unresolved issues, a telephone call to the undersigned would be welcomed.

Fees

If there are any fees due and owing in respect to this amendment, the Examiner is authorized to charge such fees to deposit account number 50-1047.

Respectfully submitted,



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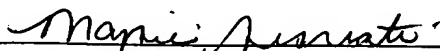
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